

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A printing apparatus which that receives a print instruction from a print instruction apparatus via a communication interface connecting said printing apparatus and the print instruction apparatus, then obtains, from the print instruction apparatus, print data including a plurality of plural pieces of sub-data, and prints the obtained print data, said printing apparatus comprising:

a print data obtainment unit operable to obtain the plurality of pieces of sub-data separately from the print instruction apparatus;

a rasterizing unit operable to rasterize each of the plurality of pieces of sub-data obtained by said print data obtainment unit;

a determination unit operable to, after said rasterizing unit starts to rasterize the plurality of pieces of sub-data obtained by said print data obtainment unit and prior to said rasterizing unit completing the rasterizing of all of the plurality of pieces of sub-data obtained by said print data obtainment unit, determine whether or not there is a necessity for said print data obtainment unit of further obtaining of the obtained sub-data to further obtain a same plurality of pieces of sub-data, by said data obtainment unit, in order for said rasterizing unit to complete the rasterizing of all of the plurality of pieces of sub-data, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data obtained by said print data obtainment unit printing of the print data; and

a notification unit operable to notify a result of the determination by said determination unit, to a to the print instruction apparatus which issues the print instruction, the result of the determination being notified to the print instruction apparatus when said determination unit determines the determination is made that there is no necessity to further obtain the same

plurality of pieces of sub-data.

Claim 2 (Currently Amended) The printing apparatus according to Claim 1,
wherein the print data includes one piece of parent sub-data and one or more pieces of child sub-data which are referred to by the one piece of parent sub-data,
wherein said print data obtainment unit is operable to obtain the one piece of parent sub-data prior to obtaining the one or more pieces of child sub-data, and
wherein said determination unit is operable to determine whether or not there is the necessity regarding the one or more pieces of child sub-data referred to by the obtained one piece of parent sub-data.

Claim 3 (Currently Amended) The printing apparatus according to Claim 2,
wherein said determination unit is operable to determine that there is no necessity, when the one or more pieces of child sub-data obtained by said print data obtainment unit is referred to by only one part in the one piece of parent sub-data.

Claim 4 (Currently Amended) The printing apparatus according to Claim 2,
wherein said determination unit is operable to determine that there is no necessity, when the one or more pieces of child sub-data obtained by said print data obtainment unit is not further referred to by the one piece of parent sub-data.

Claim 5 (Currently Amended) The printing apparatus according to Claim 2,
wherein the one or more pieces of child sub-data referred to by the one piece of parent

sub-data includes grand-child sub-data referred to by the one or more pieces of child sub-data.

Claim 6 (Currently Amended) The printing apparatus according to Claim 2,

wherein said determination unit is operable to determine whether or not there is the necessity only regarding the one piece of parent sub-data.

Claim 7 (Currently Amended) The printing apparatus according to Claim 1,

wherein said notification unit is operable to notify [[a]]the result of the determination by said determination unit, only when a request for a-the notification of the result of the determination is received from the print instruction apparatus.

Claim 8 (Currently Amended) The printing apparatus according to Claim 7,

wherein said notification unit is operable to determine whether or not the print instruction includes the request for the notification of the result of the determination, and to notify [[a]]the result of the determination regarding the necessity, only when the request for the notification is included in the print instruction.

Claim 9 (Currently Amended) The printing apparatus according to Claim 2,

wherein the one piece of parent sub-data is described in a markup language, and the one or more pieces of child sub-data is data except for the one piece of parent sub-data described in the markup language.

Claim 10 (Currently Amended) The printing apparatus according to Claim 9,

wherein the one piece of parent sub-data is described in a hyper text markup language (HTML), and the one or more pieces of child sub-data includes is one of image data and style information data.

Claim 11 (Currently Amended) A printing method of receiving a print instruction from a print instruction apparatus via a communication interface connecting a printing apparatus and the print instruction apparatus, then obtaining, from the print instruction apparatus, print data including a plurality of plural pieces of sub-data, and printing the obtained print data, said printing method comprising:

a print data obtaining step of obtaining the plurality of pieces of sub-data separately from the print instruction apparatus;

a rasterizing step of rasterizing each of the plurality of pieces of sub-data obtained by said print data obtaining step;

a determining step of, after said rasterizing step starts to rasterize the plurality of pieces of sub-data obtained by said print data obtaining step and prior to said rasterizing step completing the rasterizing of all of the plurality of pieces of sub-data obtained by said print data obtaining step, determining whether or not there is a necessity for said print data obtaining step to obtain obtaining of a same plurality of pieces of sub-data the obtained sub-data, at said data obtaining step, in order for said rasterizing step to complete the rasterizing printing of all of the plurality of pieces of sub-data print data, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data obtained by said print data obtaining step; and

a notifying step of notifying a result of the determination by said determining step, to a to the print instruction apparatus which issues the print instruction, the result of the

determination being notified to the print instruction apparatus when said determining step determines the determination is made that there is no necessity to further obtain the same plurality of pieces of sub-data.

Claim 12 (Currently Amended) A computer-readable recording medium having a program recorded thereon, the program being used in [[a]] the printing apparatus that receives, the printing apparatus receiving a the print instruction, then obtains the obtaining print data including the plurality of plural pieces of sub-data, and prints printing the obtained print data, said the program causing a computer to execute the printing method of the steps included in the printing method according to Claim 11.

Claim 13 (Currently Amended) A print instruction apparatus that which instructs a printing apparatus, via a communication interface connecting said print instruction apparatus and the printing apparatus, to print print data including a plurality of plural pieces of sub-data, said print instruction apparatus comprising:

 a print buffer in which at least one of each of the plurality of pieces of sub-data is held;

 a print data output unit operable to separately output, to the printing apparatus, each of the plurality of pieces of sub-data held in said print buffer, to the printing apparatus;

 a necessity receiving unit operable to receive, from the printing apparatus, [[a]] (i) an unnecessary notification indicating that there is no necessity for the printing apparatus to further obtain obtaining of a same plurality of pieces of sub-data the outputted sub-data, by the printing apparatus, in order for the printing apparatus to complete the printing of the print data, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data

output to the printing apparatus by said print data output unit, and (ii) a completion notification indicating that a print job is completed; and

a deletion unit operable to delete, from said print buffer, the plurality of pieces of sub-data corresponding to the unnecessary notification, from said print buffer, the plurality of pieces of sub-data being deleted before when the completion notification is received from the printing apparatus.

Claim 14 (Currently Amended) The print instruction apparatus according to Claim 13,

wherein the print data includes one piece of parent sub-data and one or more pieces of child sub-data ~~which are referred to by the~~ one piece of parent sub-data,

wherein said print buffer ~~in which~~ only holds the one piece of parent sub-data ~~is held~~ from among the one piece of parent sub-data and the one or more pieces of child sub-data included in the print data, and

wherein said deletion unit is operable to delete the one piece of parent data from said print buffer.

Claim 15 (Currently Amended) A memory release control method of releasing a print buffer in a print instruction apparatus, the print instruction apparatus instructing a printing apparatus, via a communication interface connecting the print instruction apparatus and the printing apparatus, to print print data including a plurality of plural pieces of sub-data, said memory release control method comprising:

a step of holding ~~at least one of each of the~~ plurality of pieces of sub-data in the print buffer;

a print data outputting step of separately outputting, to the printing apparatus, each of the plurality of pieces sub-data held in the print buffer, to the printing apparatus;

a necessity receiving step of receiving, from the printing apparatus, [[a]](i) an unnecessity notification indicating that there is no necessity for the printing apparatus to of further obtain obtaining of the outputted sub-data, a same plurality of pieces of sub-data by the printing apparatus, in order for the printing apparatus to complete the printing of the print data, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data output to the printing apparatus by said print data outputting step, and (ii) a completion notification indicating that a print job is completed; and

a deleting step of deleting, from the print buffer, the plurality of pieces of sub-data corresponding to the unnecessary notification, from the print buffer, the plurality of pieces of sub-data being deleted before when the completion notification is received from the printing apparatus.

Claim 16 (Currently Amended) A computer-readable recording medium having a program recorded thereon, the program being used in [[a]] the print instruction apparatus that instructs, the print instruction apparatus instructing a the printing apparatus to print the print data including the plurality of plural pieces of sub-data,

the said program causing a computer to execute the steps included in the memory release control method according to Claim 15.

Claim 17 (Currently Amended) A printing system that which includes a printing apparatus and a print instruction-instructing apparatus, the said print instruction apparatus instructing the

said printing apparatus, via a communication interface connecting said print instruction apparatus and said printing apparatus, to print print data including a plurality of plural pieces of sub-data, wherein said printing apparatus includes:

a print data obtainment unit operable to obtain the plurality of pieces of sub-data separately from said print instruction apparatus;

a rasterizing unit operable to rasterize each of the plurality of pieces of sub-data obtained by said print data obtainment unit;

a determination unit operable to, after said rasterizing unit starts to rasterize the plurality of pieces of sub-data obtained by said print data obtainment unit and prior to said rasterizing unit completing the rasterizing of all of the plurality of pieces of sub-data obtained by said print data obtainment unit, determine whether or not there is a necessity for said print data obtainment unit of further obtaining of the obtained sub-data, to further obtain a same plurality of pieces of sub-data by said data obtainment unit, in order for said rasterizing unit to complete the rasterizing printing of all of the plurality of pieces of sub-data print data, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data obtained by said print data obtainment unit; and

a notification unit operable to notify a result of the determination by said determination unit to the said print instruction apparatus, the result of the determination being notified to said print instruction apparatus when said determining unit determines the determination is made that there is no necessity to further obtain the same plurality of pieces of sub-data, and

wherein said print instruction apparatus includes:

a print buffer in which at least one of each of the plurality of pieces of sub-data is

held;

a print data output unit operable to separately output, to said printing apparatus,
each of the plurality of pieces of sub-data held in said print buffer, to the printing apparatus;
a necessity receiving unit operable to receive, from said printing apparatus, the
notification of the result of the determination by said determination unit from the printing
apparatus; and

a deletion unit operable to delete, from said print buffer, the plurality of pieces of
sub-data corresponding to the notification, from the print buffer, the plurality of pieces of sub-
data being deleted from said print buffer before when the a completion notification is received
from said printing apparatus.

Claim 18 (Currently Amended) A printing method used in a system that which includes a printing apparatus and a print instruction-instructing apparatus, the print instruction apparatus instructing the printing apparatus, via a communication interface connecting the print instruction apparatus and the printing apparatus, to print print data including a plurality of plural pieces of sub-data, said printing method comprising:

a transferring step of separately transferring, to the printing apparatus, the plurality of
pieces of sub-data held in a print buffer of the print instruction apparatus, to the printing
apparatus;

a determining step of, after the printing apparatus starts to rasterize the plurality of
pieces of sub-data transferred to the printing apparatus by said transferring step and prior to the
printing apparatus completing the rasterizing of all of the plurality of pieces of sub-data
transferred to the printing apparatus by said transferring step, determining whether or not there is

a necessity for the printing apparatus to further obtain a same plurality of pieces of sub-data of further transferring the transferred sub-data from the print instruction apparatus to the printing apparatus, in order for the printing apparatus to complete the rasterizing printing of all of the plurality of pieces of sub-data print data in the printing apparatus, the same plurality of pieces of sub-data being identical to the plurality of pieces of sub-data transferred to the printing apparatus by said transferring step;

a notifying step of notifying a result of the determination by said determining step from the printing apparatus to the print instruction apparatus, the result of the determination being notified to the print instruction apparatus when said determining step determines the determination is made that there is no necessity to further obtain the same plurality of pieces of sub-data; and

a deleting step of deleting, from the print buffer of the print instruction apparatus, the plurality of pieces of sub-data held in the print buffer of the print instruction apparatus, the plurality of pieces of sub-data being deleted from the print buffer before when the a completion notification is received from the printing apparatus performed.